

## WHAT IS CLAIMED IS:

1. A method of preventing, inhibiting and/or reversing proliferation, colonization, differentiation and/or development of abnormally proliferating cells in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a ribonuclease of the T2 family.
2. The method of claim 1, wherein said ribonuclease of the T2 family substantially lacks ribonucleolytic activity.
3. The method of claim 1, wherein the abnormally proliferating cells are cancerous cells.
4. The method of claim 1, wherein the abnormally proliferating cells are cell associated with a proliferative disorder or disease selected from the group consisting of papilloma, blastoglioma, Kaposi's sarcoma, melanoma, lung cancer, ovarian cancer, prostate cancer, squamous cell carcinoma, astrocytoma, head cancer, neck cancer, bladder cancer, breast cancer, colorectal cancer, thyroid cancer, pancreatic cancer, gastric cancer, hepatocellular carcinoma, leukemia, lymphoma, Hodgkin's disease, Burkitt's disease, arthritis, rheumatoid arthritis, diabetic retinopathy, angiogenesis, restenosis, in-stent restenosis and vascular graft restenosis.
5. The method of claim 1, wherein said step of administering to the subject said therapeutically effective amount of said RNase of the T2 family is effected by an administration mode selected from the group consisting of oral administration, topical administration, transmucosal administration, parenteral administration, rectal administration and by inhalation.
6. The method of claim 1, wherein said ribonuclease of the T2 family is RNase B1.
7. The method of claim 1, wherein said ribonuclease of the ribonuclease T2 family is selected from the group consisting of RNase T2, RNase Rh, RNase M, RNase Trv, RNase Irp, RNase Le2, RNase Phyb,

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RNase LE, RNase MC, RNase CL1, RNase Bsp1, RNase RCL2, RNase Dm, RNase Oy and RNase Tp.

8. A method of preventing, inhibiting and/or reversing proliferation, colonization, differentiation and/or development of abnormally proliferating cells in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a polynucleotide encoding and capable of expressing *in vivo* a recombinant ribonuclease of the T2 family.

9. The method of claim 8, wherein said ribonuclease of the T2 family substantially lacks ribonucleolytic activity.

10. The method of claim 8, wherein the abnormally proliferating cells are cancerous cell.

11. The method of claim 8, wherein the abnormally proliferating cells are cells associated with a proliferative disorder or disease selected from the group consisting of papilloma, blastoglioma, Kaposi's sarcoma, melanoma, lung cancer, ovarian cancer, prostate cancer, squamous cell carcinoma, astrocytoma, head cancer, neck cancer, bladder cancer, breast cancer, lung cancer, colorectal cancer, thyroid cancer, pancreatic cancer, gastric cancer, hepatocellular carcinoma, leukemia, lymphoma, Hodgkin's disease, Burkitt's disease, arthritis, rheumatoid arthritis, diabetic retinopathy, angiogenesis, restenosis, in-stent restenosis and vascular graft restenosis.

12. The method of claim 8, wherein said step of administering to the subject said therapeutically effective amount of a polynucleotide encoding and capable of expressing *in vivo* said recombinant ribonuclease of the T2 family is effected by an administration mode selected from the group consisting of oral administration, topical administration, transmucosal administration, parenteral administration and by inhalation.

13. The method of claim 8, wherein said ribonuclease T2 family is RNase B1.

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14. The method of claim 8, wherein said ribonuclease of the T2 family is selected from the group consisting of RNase T2, RNase Rh, RNase M, RNase Trv, RNase Irp, RNase Le2, RNase Phyb, RNase LE, RNase MC, RNase CL1, RNase Bsp1, RNase RCL2, RNase Dm, RNase Oy and RNase Tp.

15. A pharmaceutical composition comprising, as an active ingredient, a ribonuclease of the T2 family, and a pharmaceutically acceptable carrier.

16. The pharmaceutical composition of claim 15, wherein said ribonuclease of the T2 family substantially lacks ribonucleolytic activity.

17. The pharmaceutical composition of claim 15, wherein the abnormally proliferating cells are cancerous cells.

18. The pharmaceutical composition of claim 15, wherein the abnormally proliferating cells are cells associated with a proliferative disorder or disease selected from the group consisting of papilloma, blastoglioma, Kaposi's sarcoma, melanoma, lung cancer, ovarian cancer, prostate cancer, squamous cell carcinoma, astrocytoma, head cancer, neck cancer, bladder cancer, breast cancer, lung cancer, colorectal cancer, thyroid cancer, pancreatic cancer, gastric cancer, hepatocellular carcinoma, leukemia, lymphoma, Hodgkin's disease, Burkitt's disease, arthritis, rheumatoid arthritis, diabetic retinopathy, angiogenesis, restenosis, in-stent restenosis and vascular graft restenosis.

19. The pharmaceutical composition of claim 15, wherein said ribonuclease of the T2 family is RNase B1.

20. The pharmaceutical composition of claim 15, wherein said ribonuclease of the T2 family is selected from the group consisting of RNase T2, RNase Rh, RNase M, RNase Trv, RNase Irp, RNase Le2, RNase Phyb, RNase LE, RNase MC, RNase CL1, RNase Bsp1, RNase RCL2, RNase Dm, RNase Oy and RNase Tp.

21. A pharmaceutical composition comprising, as an active ingredient, a polynucleotide encoding and capable of expressing *in vivo* a

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recombinant ribonuclease of the T2 family, and a pharmaceutically acceptable carrier.

22. The pharmaceutical composition of claim 21, wherein said ribonuclease of the T2 family substantially lacks ribonucleolytic activity.

23. The pharmaceutical composition of claim 21, wherein the abnormally proliferating cells are cancerous cells.

24. The pharmaceutical composition of claim 21, wherein the abnormally proliferating cells are cells associated with a proliferative disorder or disease selected from the group consisting of papilloma, blastoglioma, Kaposi's sarcoma, melanoma, lung cancer, ovarian cancer, prostate cancer, squamous cell carcinoma, astrocytoma, head cancer, neck cancer, bladder cancer, breast cancer, lung cancer, colorectal cancer, thyroid cancer, pancreatic cancer, gastric cancer, hepatocellular carcinoma, leukemia, lymphoma, Hodgkin's disease, Burkitt's disease, arthritis, rheumatoid arthritis, diabetic retinopathy, angiogenesis, restenosis, in-stent restenosis and vascular graft restenosis.

25. The pharmaceutical composition of claim 21, wherein said ribonuclease of the T2 family is RNase B1.

26. The pharmaceutical composition of claim 21, wherein said ribonuclease of the T2 family is selected from the group consisting of RNase T2, RNase Rh, RNase M, RNase Trv, RNase Irp, RNase Le2, RNase Phyb, RNase LE, RNase MC, RNase CL1, RNase Bsp1, RNase RCL2, RNase Dm, RNase Oy and RNase Tp.

27. A method of preparing a medicament useful in preventing, preventing, inhibiting and/or reversing proliferation, colonization, differentiation and/or development of abnormally proliferating cells comprising the step of combining a ribonuclease of the T2 family with a pharmaceutically acceptable carrier.

28. The method of claim 27, wherein said ribonuclease of the T2 family substantially lacks ribonucleolytic activity.

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29. The method of claim 27, further comprising the step of inactivating the ribonucleolytic activity of said ribonuclease of the T2 family.

30. The method of claim 29, wherein said step of inactivating the ribonucleolytic activity of said ribonuclease of the T2 family is effected by a process selected from the group consisting of boiling, autoclaving and chemically denaturing.

31. The method of claim 27, further comprising the step of identifying the medicament as a treatment for a specified cancer.

32. The method of claim 27, further comprising the step of identifying the medicament as a treatment for a specified proliferative disorder or disease.

33. The method of claim 32, wherein the specified proliferative disorder or disease is selected from the group consisting of papilloma, blastoglioma, Kaposi's sarcoma, melanoma, lung cancer, ovarian cancer, prostate cancer, squamous cell carcinoma, astrocytoma, head cancer, neck cancer, bladder cancer, breast cancer, lung cancer, colorectal cancer, thyroid cancer, pancreatic cancer, gastric cancer, hepatocellular carcinoma, leukemia, lymphoma, Hodgkin's disease, Burkitt's disease, arthritis, rheumatoid arthritis, diabetic retinopathy, angiogenesis, restenosis, in-stent restenosis and vascular graft restenosis.

34. The method of claim 27, wherein said ribonuclease of the T2 family is RNase B1.

35. The method of claim 27, wherein said ribonuclease of the T2 family is selected from the group consisting of RNase T2, RNase Rh, RNase M, RNase Trv, RNase Irp, RNase Le2, RNase Phyb, RNase LE, RNase MC, RNase CL1, RNase Bsp1, RNase RCL2, RNase Dm, RNase Oy and RNase Tp.

36. A method of preparing a medicament useful in preventing, inhibiting and/or reversing proliferation, colonization, differentiation and/or development of abnormally proliferating cells comprising the step of

combining a polynucleotide encoding and capable of expressing *in vivo* a recombinant ribonuclease of the T2 family with a pharmaceutically acceptable carrier.

37. The method of claim 36, wherein said ribonuclease of the T2 family substantially lacks ribonucleolytic activity.

38. The method of claim 36, further comprising the step of inactivating the ribonucleolytic activity of said ribonuclease of the T2 family.

39. The method of claim 38, wherein said step of inactivating the ribonucleolytic activity of said ribonuclease of the T2 family is effected by a process selected from the group consisting of boiling, autoclaving and chemically denaturing.

40. The method of claim 36, further comprising the step of identifying the medicament as a treatment for a specified cancer.

41. The method of claim 36, further comprising the step of identifying the medicament as a treatment for a specified proliferative disorder or disease.

42. The method of claim 41, wherein the specified proliferative disorder or disease is selected from the group consisting of papilloma, blastoglioma, Kaposi's sarcoma, melanoma, lung cancer, ovarian cancer, prostate cancer, squamous cell carcinoma, astrocytoma, head cancer, neck cancer, bladder cancer, breast cancer, lung cancer, colorectal cancer, thyroid cancer, pancreatic cancer, gastric cancer, hepatocellular carcinoma, leukemia, lymphoma, Hodgkin's disease, Burkitt's disease, arthritis, rheumatoid arthritis, diabetic retinopathy, angiogenesis, restenosis, in-stent restenosis and vascular graft restenosis.

43. The method of claim 36, wherein said ribonuclease of the T2 family is RNase B1.

44. The method of claim 36, wherein said ribonuclease of the T2 family is selected from the group consisting of RNase T2, RNase Rh,

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RNase M, RNase Trv, RNase Irp, RNase Le2, RNase Phyb, RNase LE, RNase MC, RNase CL1, RNase Bsp1, RNase RCL2, RNase Dm, RNase Oy and RNase Tp.

45. A method of treating a tumor in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a ribonuclease of the T2 family.

46. A method of preventing, inhibiting and/or reversing the development a tumor in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a ribonuclease of the T2 family.

47. A method of preventing, inhibiting and/or reversing transformation of a benign tumor to a malignant tumor in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a ribonuclease of the T2 family.

48. A method of preventing, inhibiting and/or reversing tumor angiogenesis in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a ribonuclease of the T2 family.

49. A method of reducing the number of individual tumors in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a ribonuclease of the T2 family.

50. A method of reducing tumor size in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a ribonuclease of the T2 family.

51. A method of reducing a number of malignant tumors in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a ribonuclease of the T2 family.

52. A method of preventing, inhibiting and/or reversing transformation of a tissue into a tumor in a subject, the method comprising

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the step of administering to the subject a therapeutically effective amount of a ribonuclease of the T2 family.

53. A method of treating a tumor in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a polynucleotide encoding and capable of expressing *in vivo* a recombinant ribonuclease of the T2 family.

54. A method of preventing, inhibiting and/or reversing the development a tumor in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a polynucleotide encoding and capable of expressing *in vivo* a recombinant ribonuclease of the T2 family.

55. A method of preventing, inhibiting and/or reversing transformation of a benign tumor to a malignant tumor in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a polynucleotide encoding and capable of expressing *in vivo* a recombinant ribonuclease of the T2 family.

56. A method of preventing, inhibiting and/or reversing tumor angiogenesis in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a polynucleotide encoding and capable of expressing *in vivo* a recombinant ribonuclease of the T2 family.

57. A method of reducing the number of individual tumors in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a polynucleotide encoding and capable of expressing *in vivo* a recombinant ribonuclease of the T2 family.

58. A method of reducing tumor size in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a polynucleotide encoding and capable of expressing *in vivo* a recombinant ribonuclease of the T2 family.

59. A method of reducing a number of malignant tumors in a subject, the method comprising the step of administering to the subject a

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therapeutically effective amount of a polynucleotide encoding and capable of expressing *in vivo* a recombinant ribonuclease of the T2 family.

60. A method of preventing, inhibiting and/or reversing transformation of a tissue into a tumor in a subject, the method comprising the step of administering to the subject a therapeutically effective amount of a polynucleotide encoding and capable of expressing *in vivo* a recombinant ribonuclease of the T2 family.

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